

# CMM 3 does it pay off ?

## A Spectrum of Solutions



*Let's make things better.*



**PHILIPS**

# *Philips Analytical*

**The need for and benefits of  
software process improvement**

*Let's make things better.*



**PHILIPS**

- ☐ **Who is Philips Analytical?**
- ☐ **Why is software process control and process improvement so important?**
- ☐ **How did we organize and execute it?**
- ☐ **What have we achieved?**
- ☐ **Does it pay off?**
- ☐ **And then .....**

# Who is Philips Analytical

- A stand-alone business within and fully owned by Royal Philips Electronics
  - ↓ *strong global presence, 4 factories and 3 commercial headquarters in 3 regions*
  - ↓ *all processes reside within the business*
  - ↓ *900 people worldwide*
  - ↓ *profitable, growing faster than its markets*
  - ↓ *A solution provider in the markets of material characterization and metrology*



# Who is Philips Analytical

## □ Our customers are in

- ↓ *production and quality control*
- ↓ *material research and development*
- ↓ *semiconductor metrology*

## □ Our instruments are

- ↓ *fully automated, versatile and fast*
- ↓ *reliable and always available*
- ↓ *accurate and self calibrating*
- ↓ *remotely diagnosable and repairable*

# Philips Analytical

- ☐ We manage our customers business .....
- ☐ We enable his new business development and .....
- ☐ We provide solutions and partnership for many years.....

# Solutions for Semiconductor production



*Let's make things better.*



**PHILIPS**

# A reputation of quality

- ☐ **Strong customer first since 1990**
- ☐ **First with ISO 9001 in our market (1991)**
- ☐ **CMM level 2 since 1996**
- ☐ **First Philips Quality Award as a global Business Unit (1998)**
- ☐ **CMM level 3 since summer 2000**
- ☐ **Many local and business quality awards , a.o. the Twente Quality Award in 2000**



# The role of Software in our business

## □ We develop in product software to

- ↓ *control the instrument*
- ↓ *collect and process the data*
- ↓ *present and analyze the data*
- ↓ *automate the instrument and the peripheral equipment*
- ↓ *diagnose (proper) operation, also remote*

## Towards CMM level 3: our approach

- ❑ Started early 1993 with solid level 1, after two very hard lessons.
- ❑ Result: awareness that working harder would only cause more problems
- ❑ Initial start was top down.
- ❑ Priorities struggle: commercial needs versus a better process.
- ❑ Take small steps at a time.
- ❑ Growing appreciation for SPI as normal work

# SPI organization



# Towards CMM 3: our approach

- ☐ All depends on building a professional and committed process organization next to the techniques, tools and methods.
- ☐ Keep it simple and follow standards
- ☐ Define and follow a roadmap for product and required process capabilities
- ☐ Recruit and train!
- ☐ Benchmark: “better smart in stealing than brilliantly wrong”.



## Towards CMM level 3

- ❑ **Analyze and implement core (own) versus non-core (buy/outsource) activities**
- ❑ **Organization and Process Improvement to cover the full PCP process**
- ❑ **6 phases in PCP, with clearly defined milestones and deliverables, to be released by an independent body.**

# Towards CMM level 3: our approach

□ **Initially DOD based S/W development handbook in 1995 replaced by own practice:**

↓ *own and owned!*

↓ *Standard extendable and controllable documents and checklist*

↓ *facilitating completeness, quality and correctness of the deliverables*

↓ *organized by handbook chapter number*

↓ *on the intranet*

# The benefits of CMM 3

- (More) structured and stronger approach to full platform/product architecture:

*look before you leap*

- Professional commitment to requirements management (waterfall approach):

*know what you want before you begin*

- Full organizational commitment:

*top to bottom and all processes*

# The benefits of CMM 3

- Confidence and pride in the organization and oneself
- Fully committed, competent and trained project teams
- External recognition
  - ↓ *customers demand (and we can show) proof before they put “fate” in our hands*
  - ↓ *competitive benchmark is definitively in our favor*



# The benefits of CMM 3

## □ Improved process reliability and far higher hit rate:

- ↓ *the product is according specification!*
- ↓ *availability on “time”: delays reduced by factor 2 to 3*
- ↓ *considerably improved pre- and post release quality (# of problems reported)*
- ↓ *better extendibility and hence more easy to maintain and support*
- ↓ *but not yet on budget (overrun of up to 30%)*

# Life after CMM 3

- ☐ **Beware of complacency and sliding back.**
- ☐ **We have a solid base for attacking larger projects and making larger steps.**
- ☐ **Increasing productivity!**
- ☐ **Implementation of (Iterative)  
Component Based software engineering  
via Rational Unified process**
- ☐ **Extension to hardware, system and  
application**